



## DISPLAY STAND WITH FOLDABLE SELF-ERECTING SUPPORTING BASE

### FIELD OF THE INVENTION

This invention relates to a display stand having a tray and a self-erecting supporting base which is also foldable in a collapsed condition for packing with merchandise in the tray for shipping, transporting and storage.

### BACKGROUND OF THE INVENTION

Display stands made of cardboard or corrugated board material are commonly used for displaying merchandise. Such display stands have either a flat top or a tray for displaying the merchandise. The top is supported by a base which may be folded over or under the tray for storage or transportation. The base is often attached to or integrally formed with the tray such that the display stand is formed readily when the base is erected. The main drawback of such display stands is that the base must be manually and painstakingly unfolded and erected at the merchandise display location. This process is often rather awkward and frustrating to carry out due to the stiffness of the cardboard material which renders the base difficult to unfold and to erect.

Attempts have been made to provide a self-erecting base attached to the underside of the merchandise packing tray such that the base can be erected by simply lifting the tray upwards. However, the self-erecting operation of the base of such construction is problematic because the folded base tends to retain its collapsed shape permanently and it could not be unfolded by its self-erecting mechanism. This problem is particularly severe when the folded base is compressed for a relatively lengthy period of time by the weight of the merchandise packed in the tray.

## SUMMARY OF THE INVENTION

It is a principal object of the present invention to provide a display stand having a self-erecting base in which the self erecting mechanism is effective in unfolding and erecting the base.

5 It is another object of the present invention to provide a display stand in which the display tray is usable for packing, the merchandise as well as the base folded in the collapsed condition.

It is another object of the present invention to provide a display stand in which the display tray may be removably attached to the base so that the base may be easily separated from the tray for folding and packing it within the tray thereafter.

## 10 BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings,

Figure 1 is a perspective elevation view of the display stand of the present invention in the erected condition.

Figure 2 is a bottom perspective elevation view of the tray with the tray showing the provision of attaching means which is operative for removably attaching the tray to the base.

Figure 3 is a top perspective elevation view of the base with the tray removed showing the elastic biased trapezoidal shape pivotal board of the self-erecting mechanism.

Figure 4 is a top perspective elevation view of the base with the tray removed and with the pivotal board pulled downwards and the side panel pulled partially inwards by the biasing elastic cord connected between the side panels.

Figure 5 is a front perspective elevation view showing the base in a collapsed condition.

Figure 6 is a perspective elevation view of the tray with the folded base fully located

therein.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the drawings, the display stand 10 of the present invention has a display tray 11 disposed on top of a substantially rectangular base 12. The tray 11 may be used for packing the merchandise for transportation, shipping, and for displaying the merchandise when the stand is erected. The tray 11 is generally rectangular in shape and is provided with two handle openings 13 and 14 on two opposite side walls 15 and 16 respectively to facilitate its handling.

The base 12 has a generally rectangular horizontal cross sectional shape and it may be slightly larger at the bottom and tapering upwards to a smaller top end so as to provide better stability when the base is standing on a supporting surface. The front panel 17 is shorter in height than the rear panel 18, such that when the tray 11 is placed on the stand it may be in a slanted position to provide a better view of the merchandise displayed therein. The two side panels 19 and 20 have sloping top edges 21 and 22 sloping from the top corners of the taller rear panel 18 to a location slightly below the top edge 23 of the shorter front panel 17 such that a short upstanding lip 24 of the front panel 17 extends above the front corners of the side panels 19 and 20. The upstanding lip 24 serves as an abutment for the front edge of the tray 10 when the latter is placed on the base.

Two vertical fold lines 25 and 26 are provided at the middle of the side panels 19 and 20 respectively and they extend the entire length of these side panels such that the side panels 19 and 20 may be pushed inwards at these vertical fold lines, as best shown in Figure 4, to fold the base into a collapsed condition with the front panel 17 lying juxtaposed to the rear panel 18. A

horizontal fold line 27 is provided all around the base 12 and located in horizontal plane at a short distance from the top edges of the front, rear, and side panels such that the base 12 in the collapsed condition may be further folded along the horizontal fold line 27 as best shown in Figures 5 and 6. In this collapsed and folded condition, the base 12 may be conveniently packed  
5 within the tray 10 as shown in Figure 6.

A generally trapezoidal-shaped wedge pivotal board 28 is located in a horizontal manner in the base 12. The pivotal board 28 has dimensions similar to the horizontal cross section dimensions of the base 12 when the latter is in the erected condition. The wider front edge 29 of the pivotal board 28 is attached to the front panel 17 such that it is pivotable relative to the front  
10 panel as shown by the dotted line in Figure 3. The length of the pivotal board 28 is longer than the width of the side panels 19 and 20 when the latter are in the erected condition. A horizontal slot opening 30 is formed in the rear panel 18 in a location slightly below the horizontal fold line 27. A narrower rear end portion 31 of the pivotal board 28 will engage with the slot opening 30 to hold the pivotal board 28 in the generally horizontal position so as to maintain the base 12  
15 securely in the erected condition.

An operating opening 32 is formed in the pivotal board 28 at a location adjacent to the narrower rear end portion 31 and an elongated elastic cord 33 is attached at one end to the rear end portion 31 of the pivotal boards 28 and at the other end to a location adjacent to the top edge 34 of the rear panel 18. The elastic cord 33 is in the relax condition when the pivotal board 28 is  
20 located in the horizontal position with its rear end portion 31 engaged with the slot opening 30 of the rear panel 18. The base 12 may be folded to the collapsed condition by inserting a finger into the operating opening 32 and pulling the pivotal board 28 to disengage from the slot opening 30

and then pivoting downwards towards the front panel 17 as shown in the dotted line in Figure 3, and in the meantime, pushing the side panels 19 and 20 inwards at the vertical fold lines 25 and 26 until the base 12 is in the collapsed condition.

A second elastic cord 34 may be mounted between the side panels 19 and 20 and locating above the pivotal board 28 and extending between and connected to the vertical fold lines 25 and 26. The elastic cord 34 is in tension when the base 12 is in the erected condition, so that when the pivotal board 28 is pivoted downwards, the tension of the elastic cord 34 will automatically pull the side panels 19 and 20 inwards towards one another, as best shown by the arrows in Figure 4, so as to facilitate the folding of the base to the collapsed condition. In the erected condition of the base, the pivotal board 28 prevents the side panels 19 and 20 from being pulled inwards by the second elastic cord 34. The base 12 in the collapsed condition may further be folded along the horizontal fold line 27 as shown in Figures 5 and 6, so that it may be conveniently placed and packed in the tray 10 as shown in Figure 6 with the merchandise for shipping, transporting, or storage.

An extension flap 35 pivotable relative to the top edge 34 of the rear panel 18 may extend outwards from this top edge. Mounting pads 36 and 37 having a plurality of fine hair-like clinging fingers such as VELCRO (trade mark) pads may be provided on the surface of the extension flap 35 and the associate mounting pads 38 and 39 as shown in Figure 2 also provided on the underside of the tray 10 such that the mounting pads and the associate mounting pads cooperate to secure the tray 10 resting safely and removably on the base 12.

The base 12 may be erected from the collapsed condition by simply unfolding it from the horizontal fold line 27. The tension in the elastic cord 33 will automatically pull the pivotal board

28 back to the horizontal position until its rear end portion 31 engages with the slot opening 30.

• Since the dimension of the pivotal board 28 is same as the cross sectional dimension of the base in the erected condition, the pivotal board 28 would push the side panels 19 and 20 outwards against the elastic force of the elastic cord 39 until the base 12 is in the erected condition and it will maintain the base 12 rigidly in such erected condition.

The present invention may be carried out with various modifications without departing from the spirit or essential attributes thereof, and accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.